

# Influence of different desapping agents on the incidence of sapburn, ripening behaviour and quality of mango

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**Abstract** Sapburn injury in mango is regarded as the most serious problem as it reduces the aesthetic appeal and down-grades the fruit quality with considerable economic losses. For the control of sapburn injury, physiologically mature mango fruits of cv. Chausa were harvested along with 5–8 cm stalk attached. Immediately after harvesting, fruits were destemmed and treated with different desapping agent solutions [calcium hydroxide (1 %), sodium hydroxide (1 %), alum (0.5 and 1 %)] by dipping them for 5 min. In control fruits, the pedicels were removed and sap was allowed to spread freely over the fruit surface. After treatment application, fruits were air-dried and stored at ambient condition ( $30\pm 2$  °C) for 12 days. Among the treatments, fruits desapped with sodium hydroxide (1 %) showed significantly lower (7.6-fold) sapburn injury followed by alum (0.5 %) treatment than control. Respiration and ethylene evolution rates were also significantly suppressed and delayed with sodium hydroxide (1 %)

treatment. Fruit firmness and functional properties like, antioxidant capacity, total carotenoids and total phenolics content were also found higher in sodium hydroxide (1 %) treated fruits. Pectin methyl esterase and polygalacturonase enzyme activity were recorded higher in fruits of control and calcium hydroxide treatment however; it was suppressed by sodium hydroxide and alum treatments. Fruit quality parameters like color, total soluble solids, titratable acidity and total sugars content were found higher in calcium hydroxide and sodium hydroxide treated fruits than control and alum treated fruits.

**Keywords** Mango · Sapburn · Firmness · Antioxidant capacity · Functional quality · Enzyme activity

## Introduction

Mango (*Mangifera indica* L.) is considered one of the most popular fruit among million of people across the globe, particularly in India where it is deemed to be the preferred of all indigenous fruits. Because of its delicious taste and appealing aroma, it is ranked as one of the popular fruit in the national and international market. India is the largest producer of mango in the world accounting for more than 50 % of total mango production worldwide, but remains world's third largest exporter. The mango industry faces several challenges, from the very beginning during harvesting to postharvest management including pest and disease attack, limited shelf-life of fruit and quality issues. One of such major quality concerns for mango producers and exporters is sapburn, which results in poor cosmetic quality fruits thus lowers the price of fruit especially in international markets (Bosquez et al. 2000). In common with other members of the Anacardiaceae family, mango plants have an extensive system of ducts both in the fruit and stem (Joel 1980). The sap contained in the fruit ducts remains under considerable pressure and when the pedicel is

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